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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,816	01/20/2004	Alexander R. Ivanov	NU-624XX	9984
207	7590	10/21/2005		
WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP TEN POST OFFICE SQUARE BOSTON, MA 02109			EXAMINER THERKORN, ERNEST G	
			ART UNIT	PAPER NUMBER

1723

DATE MAILED: 10/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/761,816

Applicant(s)

IVANOV ET AL.

Examiner

Ernest G. Therkorn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 5-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frechet (U.S. Patent No. 6,887,384) in view of Xie (U.S. Patent No. 6,749,749). At best, the claims differ from Frechet (U.S. Patent No. 6,887,384) in reciting degassing and use of pressure. Xie (U.S. Patent No. 6,749,749) (column 22, lines 34-45) discloses that degassing the polymerization mixture gets rid of oxygen, which acts as an inhibitor and is detrimental to the resolution and reproducibility of the columns. Xie (U.S. Patent No. 6,749,749) (column 7, lines 41-44) discloses that applying pressure during polymerization compensates for shrinkage and creates uniformity in the distribution of separation-effective openings and avoids wall effect voids. It would have been obvious to degas and use pressure in Frechet (U.S. Patent No. 6,887,384) because Xie (U.S. Patent No. 6,749,749) (column 22, lines 34-45) discloses that degassing the polymerization mixture gets rid of oxygen, which acts as an inhibitor and is detrimental to the resolution and reproducibility of the columns, and Xie (U.S. Patent No. 6,749,749) (column 7, lines 41-44) discloses that applying pressure during polymerization compensates for shrinkage and creates uniformity in the distribution of separation-effective openings and avoids wall effect voids.

Claims 5-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frechet (U.S. Patent No. 6,887,384) in view of Xie (U.S. Patent No. 6,749,749) and

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Huber (U.S. Patent Pub. 2002/0088753). At best, the claims differ from Frechet (U.S. Patent No. 6,887,384) in reciting degassing, use of pressure, and the clarity of covalent bonding to the surface. Xie (U.S. Patent No. 6,749,749) (column 22, lines 34-45) discloses that degassing the polymerization mixture gets rid of oxygen, which acts as an inhibitor and is detrimental to the resolution and reproducibility of the columns. Xie (U.S. Patent No. 6,749,749) (column 7, lines 41-44) discloses that applying pressure during polymerization compensates for shrinkage and creates uniformity in the distribution of separation-effective openings and avoids wall effect voids. Frechet (U.S. Patent No. 6,887,384)'s column 15, lines 23-28 vinylization of the microchannel is considered to be a disclosure that the monolith is covalently bonded to the surface. In any event, Huber (U.S. Patent Pub. 2002/0088753) (paragraphs 10 and 12) specifically states that monoliths are covalently attached to a surface to immobilize them. It would have been obvious to degas and use pressure in Frechet (U.S. Patent No. 6,887,384) because Xie (U.S. Patent No. 6,749,749) (column 22, lines 34-45) discloses that degassing the polymerization mixture gets rid of oxygen, which acts as an inhibitor and is detrimental to the resolution and reproducibility of the columns, and Xie (U.S. Patent No. 6,749,749) (column 7, lines 41-44) discloses that applying pressure during polymerization compensates for shrinkage and creates uniformity in the distribution of separation-effective openings and avoids wall effect voids. It would have been obvious that Frechet (U.S. Patent No. 6,887,384) in view of Xie (U.S. Patent No. 6,749,749) covalently attaches their monoliths because Frechet (U.S. Patent No. 6,887,384)'s column 15, lines 23-28 vinylization of the microchannel is considered to be a disclosure

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that the monolith is covalently bonded to the surface and Huber (U.S. Patent Pub. 2002/0088753) (paragraphs 10 and 12) specifically states that monoliths are covalently attached to a surface to immobilize them.

The remarks appear to urge Xie (U.S. Patent No. 6,749,749) is directed only to large columns. However, Xie (U.S. Patent No. 6,749,749) discloses on column 20, lines 50-55 that his plugs may be used in columns of any size and shape including microchips.

The remarks urge patentability based upon the allegation that Frechet (U.S. Patent No. 6,887,384) in view of Xie (U.S. Patent No. 6,749,749) does not apply positive pressure from both ends of a channel or column. Xie (U.S. Patent No. 6,749,749) in Figures 3 and 4 shows open ended columns 1022 and 922 with pressurizing piston 112 and containment plug 1024 and piston 76 and confinement plug 923, respectively. The force from the piston side of the column must equal the force applied by the plug side otherwise the plug would be expelled by the column. As such, positive pressure is applied to both ends of the column. It is noted that Xie (U.S. Patent No. 6,749,749) discloses that compressed gas may be used as an alternative to means of pressurizing. Lastly, it is noted that applicants do not appear to have identified their pressurizing means.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

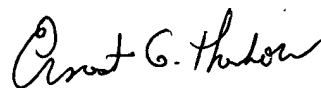
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication should be directed to E. Therkorn at telephone number (571) 272-1149. The official fax number is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Ernest G. Therkorn**  
**Primary Examiner**  
**Art Unit 1723**

EGT  
October 17, 2005